Waterspouts near the Equator.—Approximately 700 miles to northward of Cape St. Roque (in 5°10′ N., 33°04′ W.), on October 14, about 7:50 a. m., local time, with barometer 1,013.9 millibars (29.94 inches), waterspouts were observed, as reported below:

Wind fitful and light, shifting continuously from north to east to southwest and back. Partly cloudy and light rain squalls. Cloud movements shifty and in various directions.

One mass of clouds, apparently at a lower level than the surrounding cloud formations, drifting from a northeasterly direction, moved into what seemed to be a stationary mass of clouds, almost immediately forming a single spout close enough to our vessel that the boiling motion on the surface of the sea could be observed. As this spout seemed to gain in violence, and as the column darkened, it appeared to move in a northwesterly direction.

Perhaps 5 minutes later the column of the spout began to lighten and fade.

At this time two more spouts formed in the same cloud group further to the southeast. These two columns, one of which was very twisted, seemed to start fading almost as soon as they were well formed. These two lasted perhaps 5 minutes.

The first spout was in formation a little better than 10 minutes when it started fading. The column of the spout seemed to part in the center, the lower half dropping into the sea, and the upper half receding upward into the cloud. Some time after the lower half had dropped into the sea, however, and while the upper half was still fading upward, a motion was still visible on the surface of the sea.

Past weather was with light rain squalls, and the prevailing cloud formation was cumulonimbus.

Fog.—There was but little fog reported this month. The square 40° to 45° N., 65° to 70° W., had fog on 3 days, and a very few other ocean areas are indicated as having fog on 1 or 2 days. No fog was reported from any position to eastward of the 55th meridian, or to southward of the 35th parallel.

Even where most fog was noted, near the coasts of eastern New England and of Nova Scotia, the occurrence was apparently less than the normal during the month of October.

OCEAN GALES AND STORMS, OCTOBER 1941

Vessel	Position at time of lowest barometer		Gale began October	Time of lowest barometer, October	Gale ended, October	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	Latitude	Longitude									
NORTH ATLANTIC OCEAN	° ′	° ′				*Millibars*					
A vessel	24 12N.	69 18W.	4	1p, 4	4	1,007.8	ENE	ENE, 7	SE	SE, 8	ENE-E.
Do	25 42N.	77 12W.	5	7p, 5	5	1,005.3	NE	ENE, 8	E	ENE, 8	NE-E.
Do	27 36N.	82 42W.	6	4p, 6	6	1,005.8	NE	SE, 9	SE	SE, 9	NE-SE.
Do	37 06N.	69 24W.	8	2p, 8	8	1,010.8	W	W, 8		W, 8	
Do	32 10N.	77 30W.	8	5p, 8	8	1,002.7	SSW	ESE, 9	E	ESE, 9	S-E.
Do	38 06N.	58 18W.	9	3a, 9	9	1,004.4	SW	SW, 9	SW	SW, 9	SW-NNW.
Do	29 12N.	74 42W.	10	2p, 10	10	999.3	ESE	NW, 6	E	ESE, 8	ESE-NNE-W.
Do	27 54N.	79 42W.	11	6p, 10	11	1,012.9	NE	N, 3	NE	N, 8	
Do	40 42N.	68 06W.	10	10p, 10	11	1,002.7	NW	WNW, 7	NW	NW, 8	
Do	38 30N.	60 06W.	11	8a, 11	11	1,002.0	S	SSW, 8	W	SW, 8	SSW-NW.
Do	29 00N.	70 00W.	11	8a, 11	12	1,003.1	SW	SW, 7	NNE	N, 8	SW-W.
Do	39 06N.	47 48W.	20	9a, 20	21	997.0	SSE	SSW, 7	NW	NW, 8	SSE-SSW-NNW.
Do	47 30N.	52 40W.	19	1p, 20	20	991.5	SSE	N, 9	N	N, 9	NNE-N.
Do	39 06N.	60 42W.	28	2a, 29	29	1,015.9		SSW, 8		SSW, 8	S-SSW.
NORTH PACIFIC OCEAN											
A vessel	42 36N.	169 42E.	1	5p, 30 [1]	1	1,019.6	NNW	NNW, 6	N	N, 8	
Do	38 24N.	124 00W.	1	4p, 1	2	1,015.9	NW	NW, 7	NW	NW, 8	
Do	53 54N.	156 12W.	1	8a, 1	2	994.6	SW	SW, 6	WSW	SW, 8	S-SW.
Do	37 36N.	124 54W.	1	4a, 2	2	1,015.6	WNW	NW, 8	NW	NW, 8	None.
Do	57 30N.	151 00E.	2	3a, 4	3	997.0	WNW	NW, 5	WNW	WNW, 8	WNW-NW.
Do	48 00N.	168 24W.	3	7p, 3	4	1,013.2	S	S, 7	S	S, 8	
Do	49 18N.	132 48W.	8	9a, 9	9	999.3	W	SW, 7	WSW	W, 8	E-SW-SSW.
Do	48 19N.	124 49W.	9	12m, 9	9	1,003.4	SE	SE, 8	SE	SE, 8	None.
Do	30 36N.	149 36E.	10	4a, 11	11	1,018.0	N	NE, 8	NE	NE, 8	None.
Do	24 21N.	156 20E.	10	4a, 12	13	993.3	NE	NE, 10	SE	NE, 10	
Do	31 00N.	154 00E.	12	6a, 13	13	1,009.1	ENE	ENE, 7	ESE	ENE, 8	ENE-ESE.
Do	58 00N.	148 54W.	12	4p, 12	13	977.0	NE	N, 10	SW	NNE, 11	NNE-WNW.
Do	[2] 14 00N.	94 06W.	12	4p, 12	13	1,008.8	N	NNW, 3	ENE	ENE, 8	W-N.
Do	32 48N.	158 00E.	12	6p, 14	15	1,003.1	NE	S, 10	SW	S, 10	SSE-S.
Do	51 18N.	138 36W.	14	10p, 14	15	985.4	SE	SW, 9	SW	SW, 9	SE-W.
Do	[2] 49 29N.	156 56W.	14	10p, 14	15	981.4	SSE	SW, 8	WSW	WSW, 9	SW-WSW.
Do	54 36N.	135 24W.	15	9p, 15	16	997.6	SE	SE, 8		SE, 8	
Do	47 42N.	151 12W.	15	12p, 15	18	975.3	SE	SW, 10	WNW	SW, 10	
Do	42 05N.	178 00W.	15	3a, 16	16	986.8	S	SW, 11	NNW	SW, 11	S-WSW.
Do	58 36N.	138 00W.	16	9p, 16		974.9		E, 8		E, 8	
Do	53 00N.	148 18W.	16	11p, 16	18	948.2	SE	SSW, 10	W	SW, 10	S-SW.
Do	58 06N.	160 54W.	17	7a, 17	17	985.1	NW	NW, 8	NW	NW, 8	NNW-NW.
Do	[2] 51 38N.	138 17W.	15	4p, 17	19	988.2	SW	SSW, 8	WSW	S, 9	S-SW.
Do	56 18N.	145 06W.	16	9a, 17	18	957.3	SSE	ESE, 8	WNW	NW, 10	SSE-E.
Do	43 42N.	133 48W.	17	9a, 17	18	1,009.1	W	W, 4	WNW	WNW, 8	S-W.
Do	54 18N.	155 18W.	19	2a, 19	19	986.1		SW, 5	NW	NW, 9	S-W.
Do	40 00N.	150 12W.	20	2p, 20	20	1,004.4	SSE	SSE, 8	SSE	SSE, 8	
Do	26 51N.	149 06W.	23	1p, 23	23	1,011.2	NW	N, 10	N	N, 10	Var.-N.-NNW.
Do	33 29N.	158 58E.	24	2a, 25	25	1,009.1	N	N, 8	N	N, 9	None.
Do	40 18N.	138 00W.	24	6a, 25	25	[3] 984.4	SW	SW, 8	SW	SW, 8	
Do	39 30N.	155 12W.	25	4p, 26	26	1,005.1	S	S, 8	SSW	S, 9	

[1] September. [2] Position approximate. [3] Barometer uncorrected.

WEATHER ON THE NORTH PACIFIC OCEAN

By WILLIS E. HURD

Atmospheric pressure.—Over the greater part of the ocean from which readings are available for October 1941, the mean pressure was practically normal. The region of greatest departure was in the Gulf of Alaska, where considerable cyclonic activity occurred. At Juneau, with a mean barometer of 1,007.1 millibars (29.74 inches), the pressure was 4.4 millibars (.13 inch) below the normal of the month. The lowest barometer reading reported for October was 948.2 millibars (28.00 inches) read on a ship in the central Gulf of Alaska on the 16th.

There was much anticyclonic activity on the east-central part of the ocean, and the average HIGH extended from the Washington coast southwestward across Midway Island.

In southwestern waters, the island of Guam had an unusually low mean barometer for a tropical station in October. The average was 1,007.2 millibars (29.74

inches), which is 3.3 millibars (.10 inch) below the normal.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Pacific Ocean and its shores October 1941*

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	*Millibars*	*Millibars*		*Millibars*	
Barrow	1,010.3	−3.2	1,032	27	998	5
Dutch Harbor	1,005.0	+.9	1,028	21	976	16
St. Paul	1,004.3	−.9	1,028	21	990	31
Juneau	1,007.1	−4.4	1,025	27	982	17
Tatoosh Island	1,016.9	+.6	1,028	2	1,002	11
San Francisco	1,015.2	−1.1	1,025	30	1,004	4
Mazatlan	1,011.2	+.7	1,014	23	1,000	1
Honolulu	1,014.2	−1.7	1,020	30	1,009	24
Midway Island	1,018.7	+1.8	1,025	23	1,008	6
Guam	1,007.2	−3.3	1,012	31	1,002	23
Hong Kong						

NOTE.—All data based on available observations, departures compiled from best available normals related to times of observation, except Juneau, Tatoosh Island, San Francisco, and Honolulu.

Cyclones and gales of the extratropics.—Following an unusually quiet September, the weather on the North Pacific became much stormier in October. At the beginning of the month gales of force 8 occurred in several parts of the ocean in minor disturbances. Off the central California coast northwesterly winds of force 8 were observed on the 1st and 2d. In the Okhotsk Sea a westerly gale of force 8 was reported on the 3d in connection with a cyclone of that region. Along the northern routes scattered gales of like intensity were experienced from the 1st to 4th. On the 8th and 9th fresh gales occurred in a disturbed area off the coast of Washington.

The period from the 12th to the 19th was one of considerable activity over the northeastern part of the ocean, while a cyclone of great intensity was central over and near the Gulf of Alaska. As early as the 12th one vessel encountered a wind of force 11 near 58° N., 149° W., with barometer down to 997 millibars (28.85 inches). On the 14th two ships, one near 51° N., 139° W., and the other near 50° N., 157° W., had southwesterly gales of force 9, with low barometers, as the storm spread southward. On the 15th and 16th scattered gales of force 8 to 12 occurred over a wide area from the coast of southeastern Alaska to a great distance seaward. One vessel, near 48° N., 151° W., at time of lowest barometer on the 16th, reported encountering southwesterly force-10 gales throughout about a 24 hour period. Another ship reported hurricane velocities at both a. m. and p. m. observations, near 48° N., 157° W. On the 16th to 18th, barometers were very low in the central Gulf of Alaska. A ship near 53° N., 148° W., on the 16th, had a low reading of 948.2 millibars (28 inches), with a southwesterly gale of force 10 that continued well into the 17th. Another ship on the 18th, near 56 °N., 145° W., had almost as low a barometer, with a northeasterly gale of force 10. On the 19th, south of Kodiak, a force-9 gale was reported.

The farthest southward spread of the storm, so far as covered by gale reports, was near 44° N., 134° W., where a force 8 wind was experienced, with only small depression of the barometer on the 18th. The farthest westward extent of the cyclone, at its time of most extensive development, was near the 180th meridian, where a ship in 42° north latitude had westerly gales of force 9 to 11 on the 15th and 16th.

From about the 23d to 25th an elongated low-pressure area extended north and south between approximately 25° and 50° N., 135° and 150° W. Scattered gale winds occurred within its boundary, but the most important was one of force 10 from the north, encountered near 27° N., 149° W., on the 23d.

Typhoons.—Subjoined is a report, by the Reverend Bernard F. Doucette, S. J., Weather Bureau, Manila, P. I., of a depression of October 18–23, and of a typhoon of October 22–November 2, which occurred in the Far East.

In addition to the foregoing, ships' reports indicate the existence of another typhoon which occurred well to the eastward of the Ogasawara (Bonin) Islands from at least the 11th to the 14th. Our earliest reports concerning its intensity came from a ship near 24° N., 155°–156° E., on the 11th and 12th. The highest wind force was 10, from northeast, lowest barometer 993.3 millibars (29.33 inches). To the northwestward ships reported fresh northeasterly gales on the 12th, and on the 14th a vessel rode through a south gale of force 10 near 33° N., 158° E. The cyclone is thus seen to have been moving northward well out at sea.

Tehuantepecers.—The only norther gale reported in the Gulf of Tehuantepec was one of force 8, on the 13th.

Fog.—Very few instances of fog are found in ships' observations over the open Pacific. It was reported on 2 days off the Washington coast, on 1 day off Oregon, on 5 days off California, and on 3 days off the upper coast of Lower California.

TYPHOONS AND DEPRESSIONS OVER THE FAR EAST

BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Depression, October 18–23, 1941.—About half way between Yap and Mindanao, a low pressure area became a depression, moving in a west-northwesterly direction on October 18 and 19. The afternoon and evening observations from stations near San Bernardino Strait indicated that the storm was intensifying, yet the morning of October 20 showed only a depression, central over Bondoc Peninsula, which had moved westerly across southern Luzon during the night. This weak center moved westerly into the China Sea. As a depression of minor importance, it moved northwest about 200 miles after leaving Verde Island Passage, then westerly to Indochina, where it disappeared.

Two lives were lost on Marinduque Island as this depression crossed the Archipelago. Considerable rain was reported from stations of southern Luzon and the Visayan Islands.

As this center was approaching southern Luzon, October 19, Virac, Catanduanes Island, reported 751.2 mm. (1,000.5 mb.), indicating that the storm was intensifying to typhoon strength. However, during the night, nothing lower than the above value was reported as the storm center moved across the Archipelago.

The upper winds over Zamboanga and Cebu changed from east quadrant to southwest quadrant on October 16. Almost at the same time, a mild surge from the east quadrant appeared over Guam. As the depression center came into existence, Zamboanga and Cebu velocities were weak, but directions showed a tendency to shift to the northwest quadrant. This tendency also appeared in the directions of the lower clouds over stations of the Visayan Islands. Because of these weak velocities and the movement of cool air from northern regions around the regions south of the center into the weak southwesterly air stream, there was no development. Velocities of the upper winds over Cebu and Zamboanga reached values of 50 and 60 k. p. h. only on October 20, when the depression center was moving toward Verde Island Passage. Other